Combo model working group report

1. Housekeeping issues
   - make sure noisy O(1D) fix is implemented at GSFC
   - resolve low surface O3 issue (it's a bug, not a feature)
   - make sure diagnostics are equivalent to tropo version 2
   - implement CH4 boundary condition meridional gradient, but keep as mr bc
   - unify KMG reaction database file: strat/combo/larccombo/trop
   - install fvgcm-based version in sourcemotel if it isn't already

2. Combo/strat model intercomparison
   - needed for traceability - how different is UT/LS, and why?
   - generate combo/strat model sims that are "as alike as they can be," but no more alike than that (e.g. don't turn off convection in combo, etc.)
   - single year of GEOS-4 winds at 4x5, 5 year run to get close to converged
   - Olsen and Schoeberl to select year for normal STE

3. Lowermost stratosphere - budget and effects of VSL species
   - how important are halocarbons to O3 budget of UT/LS?
   - add halocarbons to mechanism & investigate
   - simple tracer studies (e.g., CH3I) to investigate product gas vs source gas injection issues, etc.

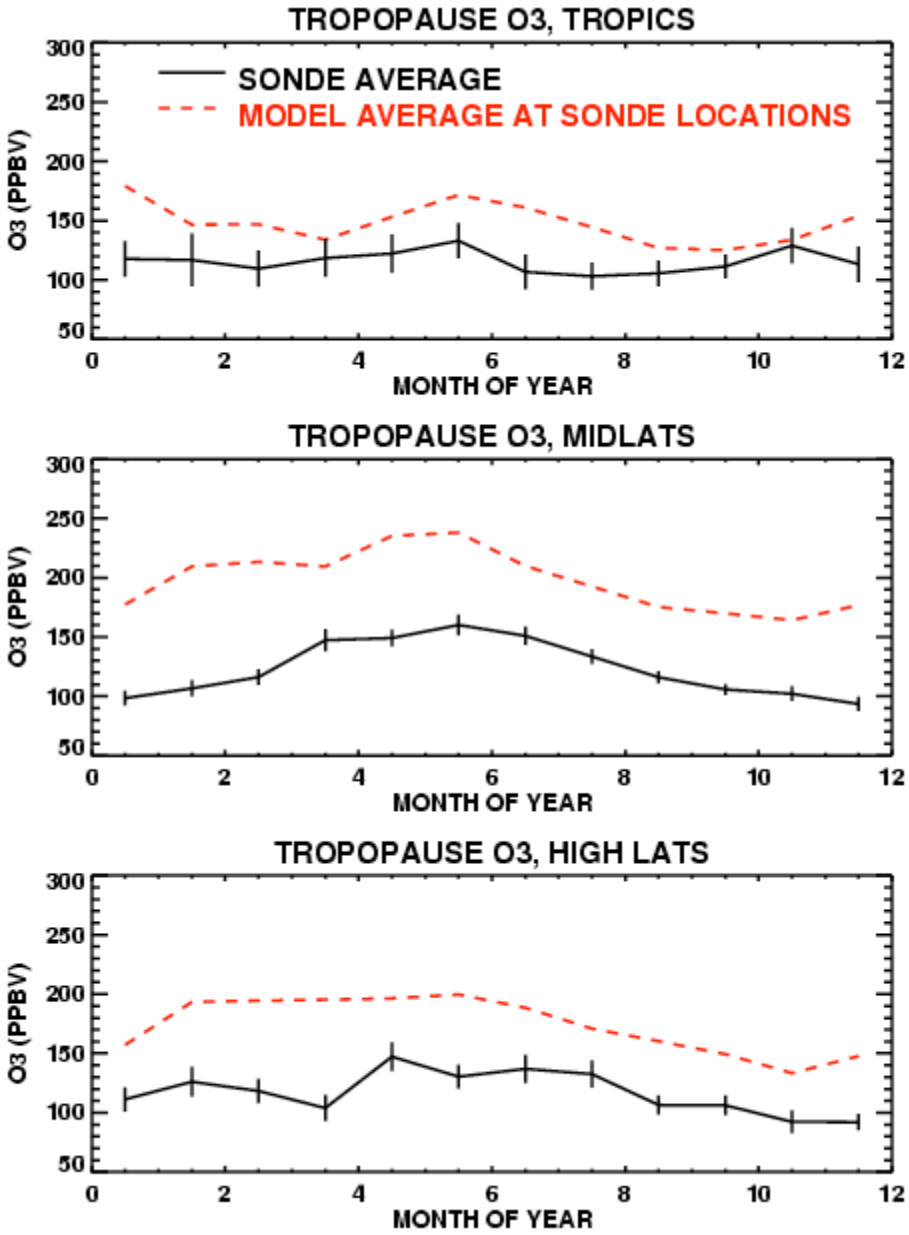
4. Aura connection
    - Aura data intercomparison with model output to evaluate lowermost strat transport processes
    - Generate model results database for use by Aura community (e.g., available off web site)
        - NOTE - only do this if we can get forecast winds driving CTM and the residual circulation looks good

5. Interaction with chemistry/climate efforts
    - Integrate combo model chemistry into GEOS-5
    - Provide evaluation procedures and performance metrics to GCM community.
        - NOTE - this suggests major role for GMI is not necessarily to develop its own GCM chem/climate effort, but provide guidance to that community on evaluation.

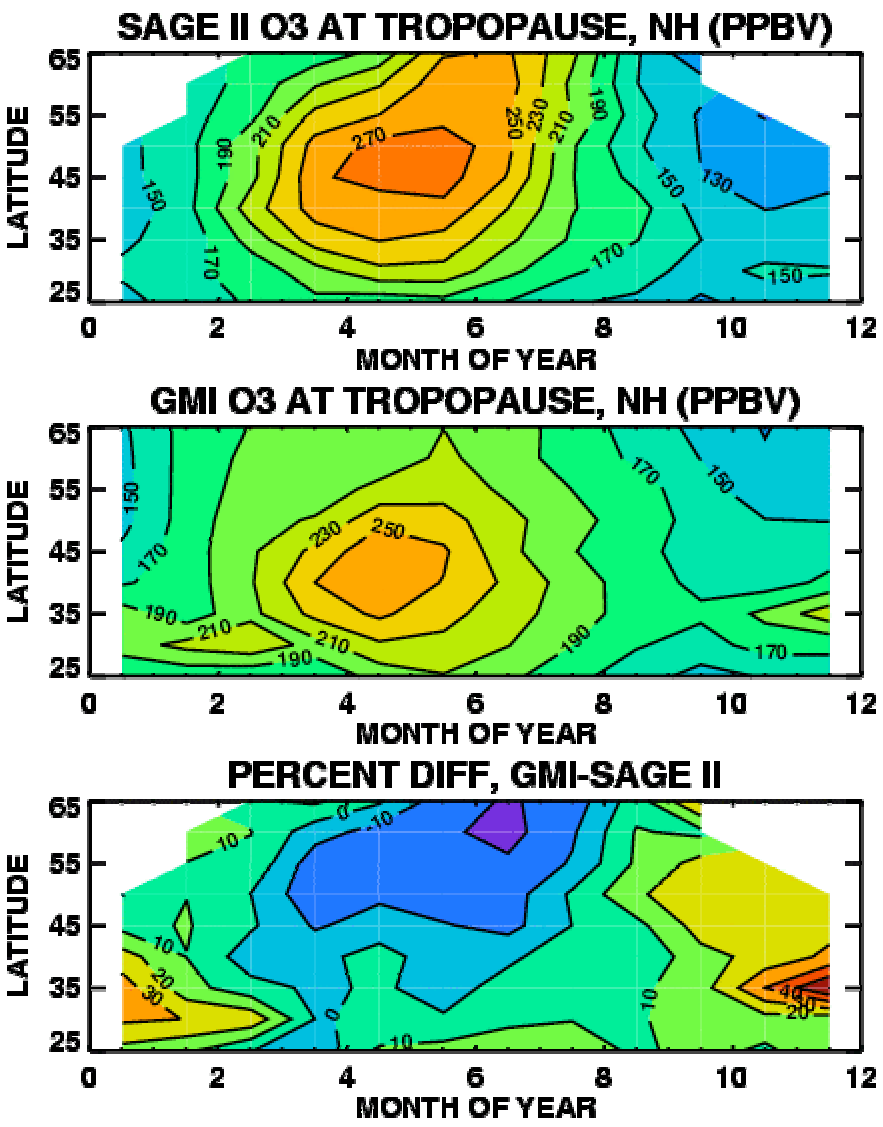
6. Larccombo mechanism/solver
    - resolve issues with mechanism and regenerate
    - transfer code and namelist files to GSFC
    - align fastjx treatments with combo
    - investigate combo/larccombo diffs - what diffs are mechanism-dependent, how big are they, and are they interesting?
    - finish work on solver shell and test native solver to investigate speed increases - we need to know to see if this is a viable path to 2 x 2.5

7. Combo/tropo comparisons
    - evaluate combo against tropo model using tropo model diagnostics
    - what's similar, what's different?
    - repeat with larccombo/tropo?

8. Combo/SAGE II/sonde analysis
    - Michael was right - SAGE II & sonde thermal tropopause ozone predictions are inconsistent (SAGE II is high-biased by ~ 100 ppbv)
    - I need to do some more work before writing this up



GMI/FVGCM comparison to sonde climatology



GMI/FV Compared to SAGE II